

Claims

I claim:

- 5 1. A beverage system for brewing a beverage from a
beverage material and a source of hot, pressurized water, comprising:
a cartridge with the beverage material therein;
said cartridge comprising a sealing layer positioned
about the beverage material; and
10 an injection system for injecting the hot, pressurized
water into said cartridge so as to brew the beverage from the beverage
material.
- 15 2. The beverage system of claim 1, wherein said
injection system comprises an injection nozzle for penetrating said
sealing layer.
- 20 3. The beverage system of claim 2, wherein said
injection system comprises an injection head positioned about said
injection nozzle.
- 25 4. The beverage system of claim 3, wherein said
injection head comprises a sealing ring positioned about said injection
nozzle so as to create a seal between said injection head and said
cartridge.
- 30 5. The beverage system of claim 3, wherein said
injection system comprises a drive system so as to maneuver said
injection head about said cartridge.
6. The beverage system of claim 5, wherein said
drive system comprises an eccentric cam for maneuvering said
injection head about said cartridge.

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7. The beverage system of claim 5, wherein said drive system maneuvers said injection head into contact with said cartridge with about 135 to about 160 kilograms of force.

5 8. The beverage system of claim 2, wherein said cartridge comprises a first end and wherein said first end comprises an insert positioned a predetermined distance under said sealing layer such that said injection nozzle may penetrate said sealing layer but not said insert.

10 9. The beverage system of claim 8, wherein said cartridge comprises a second end and a second sealing layer and wherein said second sealing layer comprises a scored area such that said scored area may release from said second sealing layer under the
15 application of pressure.

10. The beverage system of claim 1, wherein said sealing layer comprises a foil.

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11. A device for holding a beverage brewing material,
comprising:

a container comprising a first end and a second end;
said container containing said beverage brewing

5 material;

said first end of said container comprising a wall;
said wall comprising a plurality of apertures therein;
a first seal positioned about said wall by a predetermined

10 distance; and

a second seal positioned about said second end.

12. The device of claim 11, wherein said
predetermined distance comprises about 1 to about 4 centimeters.

13. The device of claim 11, wherein said wall
comprises an insert.

14. The device of claim 11, wherein said first seal and
said second seal each comprise a foil such that said device maintains
20 the beverage brewing material in a substantially air tight manner.

15. The device of claim 11, wherein said second seal
comprises a scored area such that said scored area may release from
said second seal upon the application of pressure.

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16. The device of claim 11, wherein said second end
comprises a filter layer.

17. The device of claim 11, wherein said container
30 comprises a thermoplastic.

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18. A beverage system for producing a beverage from a source of hot water and a number of beverage material containers, comprising:

a plate;

5 said plate comprising a plurality of apertures, said plurality of apertures sized to accommodate the beverage material containers; and

an injection station positioned about said plate;

10 said injection station comprising means for injecting the beverage material containers with hot water from the hot water source so as to produce the beverage.

19. The beverage system of claim 18, further comprising a drive motor so as to drive said plate.

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20. The beverage system of claim 19, further comprising a limit switch positioned adjacent to said plate, said limit switch being in communication with said drive motor.

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21. The beverage system of claim 20, wherein said plate comprises one or more detents positioned therein such that said detents may align with said limit switch so as to stop the movement of the plate.

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22. The beverage system of claim 18, wherein said injecting means comprises an injection nozzle for penetrating the beverage material containers.

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23. The beverage system of claim 22, wherein said injecting means comprises an injection head positioned about said injection nozzle.

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24. The beverage system of claim 23, wherein said injecting means comprises a sealing ring positioned about said injection nozzle so as to create a seal between said injection head and the beverage material containers.

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25. The beverage system of claim 23, wherein said injecting means comprises an injection drive system so as to maneuver said injection head about the beverage material containers.

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26. The beverage system of claim 25, wherein said injection drive system comprises an eccentric cam for maneuvering said injection head about the beverage material containers.

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27. The beverage system of claim 25, wherein said injection drive system maneuvers said injection head into contact with the beverage material containers with about 135 to about 160 kilograms of force.

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28. The beverage system of claim 18, further comprising a loading assembly positioned about said plate.

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29. The beverage system of claim 28, wherein said loading assembly comprises a container carousel for storing the beverage material containers.

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30. The beverage system of claim 29, wherein said loading assembly comprises a loading mechanism so as to place the beverage material containers within one of said plurality of apertures of said plate.

31. The beverage system of claim 30, wherein said loading mechanism comprises an escapement ratchet operated by a solenoid.

32. The beverage system of claim 18, further comprising an ejector assembly positioned about said plate.

5 33. The beverage system of claim 32, wherein said ejector system comprises a lift mechanism positioned about said plate so as to remove the beverage material containers from one of said plurality of apertures of said plate.

10 34. The beverage system of claim 33, wherein said lift mechanism comprises a plunger operated by a solenoid.

15 35. The beverage system of claim 32, wherein said ejector system comprises a sweep mechanism so as to push the beverage material containers off of said plate.

36. The beverage system of claim 35, wherein said sweep mechanism comprises a rotating arm operated by a solenoid.

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18-1 37. A beverage system for producing a beverage from a source of hot water and a number of beverage material containers, comprising:

5 a transport assembly for maneuvering the beverage material containers;

a loading assembly positioned adjacent to said transport assembly for loading the beverage material containers onto said transport assembly;

10 an injection station positioned adjacent to said transport assembly for injecting the beverage material containers with hot water from the hot water source; and

an ejection station positioned adjacent to said transport assembly for removing the beverage material containers from said transport assembly.

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38. A beverage system for brewing a beverage from a container of beverage material; comprising:

a primary source of hot, pressurized water;

5 an injection system in communication with said primary source so as to insert the hot, pressurized water into the container of beverage material so as to produce a primary beverage stream;

a secondary source of hot water; and

10 a mixing container for mixing the hot water from said secondary source with said primary beverage stream so as to produce the beverage.

39. The beverage system on claim 38, wherein said secondary source of hot water comprises a hot water reservoir.

15 40. The beverage system of claim 39, wherein said primary source of hot, pressurized water comprises a heat exchanger in communication with said hot water reservoir.

20 41. The beverage system of claim 40, wherein said primary source of hot, pressurized water comprises a pump.

42. The beverage system of claim 41, wherein said pump comprises multiple flow rates.

25 43. The beverage system of claim 38, wherein said mixing container comprises a collection funnel.

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44. A method for preparing a brewed beverage from a beverage material and a flow of water, the beverage material being positioned within a container having a first seal and a second seal, said method comprising the steps of:

- 5 pressurizing the flow of water;
 heating the flow of water;
 injecting the flow of water into the container of beverage material through the first seal; and
10 bursting the second seal such that the beverage may flow out of the container.

45. The method of claim 44, wherein the flow of water may be pressurized to about 2 to about 14 kilograms per square centimeter.

15 46. The method of claim 44, wherein the flow of water may be heated to about 82 to about 93 degrees Celsius.

20 47. The method of claim 44, further comprising a secondary water flow and wherein said method comprises the further step of mixing said beverage and said secondary water flow.

25 48. The method of claim 44, wherein the second seal of the container comprises a scored area and wherein said step of bursting the second seal comprises bursting said scored area.

30 49. The method of claim 44, wherein the beverage material comprises espresso grinds and wherein the injecting step provides the flow of water through the container at about nine (9) to about fourteen (14) kilograms per square centimeter.

35 50. The method of claim 44, wherein the beverage material comprises coffee grinds and wherein the injecting step provides the flow of water through the container at about two (2) to about fourteen (14) kilograms per square centimeter.

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51. The method of clam 44, wherein the beverage material comprises tealeaves and wherein the injecting step provides the flow of water through the container at about two (2) to about four
- 5 (4) kilograms per square centimeter.

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